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Telephone Engineering Newsletter

Newsletters are intended to provide a means for answering questions that arise in the field and to inform the field of new developments. They are not intended to be instructions nor to replace in any respect the presently approved channels for establishing requirements and procedures.

TE & CM Sections Recently Distributed

Rev. Section 303	Control of Maximum Temperatures in Unattended Dial Central Office Buildings
New Section 407	How to Make Insertion Loss Measurements
Rev. Section 618	One Pair Aerial Distribution Wire
Rev. Section 625	Open Wire Pole Top Assembly Units
Rev. Section 633	Design and Construction of Aerial Multipair Distribution Wire Plant
New Section 640	Design of Buried Plant
Rev. Section 701	Station Installations
New Section 704	Key Telephone Systems and PBX's

TE & CM Sections Now Being Printed

Rev. Section 102	Numerical Index
Addendum to Section 810	Central Office Protection

Supplement to REA Bulletin 441-1, Pole Maintenance

A supplement to Bulletin 441-1 has been submitted for printing. This gives charts showing minimum ground line circumferences for use in pole maintenance inspection. Included is other information needed in telephone pole maintenance.

TE & CM-407, Insertion Loss Measurements Adopted by Automatic Electric Company for School Use

The Automatic Electric Company has been granted permission to use Section 407 as a text in their school.

New Issue of National Electrical Code

The present issue of the NE Code is dated 1956. A revision has been completed and is expected to be available this fall with the recommendation of the National Fire Protection Association.

Kellogg K-60 Community Dial Office Equipment

Osage City, Kansas, (Kansas 513) has the first Kellogg K-60 Crossbar Community Dial Central Office equipment installed for an REA borrower. The scheduled cutover date was May 3, 1959.

North Electric Company Crossbar Community Dial Office Equipment

The North crossbar type CDO equipment is expected to be ready for REA inspection in June.

Leich TPS Relay Type Community Dial Office Equipment

The first REA Leich TPS relay type dial equipment was installed at Pecatonica, Illinois (Illinois 546). It was cut over January 17, 1959. This type equipment is now listed by REA.

Revised Annual Costs for Carrier and Repeater Equipment

Transistorized carrier and repeater equipment has resulted in reduced annual costs sufficient to justify issue of new data. This new information is in preparation and will be issued soon in TE & CM Section 218.

Home Made Current Flow Test Set

An inexpensive current flow test set for use in relay adjusting has been suggested by REA Technician Don Riney. He has made up a few of them for borrowers. They include two toggle switches, four adjustable resistances, three non-adjustable resistances, a fuse and binding posts for battery supply, milliammeter and test connections. The diagram with resistance data is available from REA.

Hubbard and Company Point Transposition Brackets

Hubbard's latest design for 10 and 12 inch point transposition brackets uses high carbon steel which greatly increases the bracket strength over their previous design. The resulting brackets are about 1/3 cheaper than other designs.

Staking Conferences

Three buried plant staking conferences were held recently. They were held in Kansas City, Missouri, for Section 4, Milwaukee, Wisconsin, for Sections 2 and 8 and Atlanta, Georgia, for Sections 6 and 7. Consulting engineers, state highway engineers, contractors and Bell System representatives participated in these, together with REA personnel who conducted the conferences.

Transistorized Ringing Generators

The Warren Ringing Generator installed at Hoarrison City, Pennsylvania, (Pennsylvania 528) has successfully passed the six month test and the telephone company desires to purchase it for permanent use. The Lorain TK-5 type at Bentley Creek, Pennsylvania, (Pennsylvania 522) is operating satisfactorily but the six month test period is not yet finished.

OPEN WIRE AND STATION TROUBLE

The analysis of trouble cleared reports from a group of pilot borrowers for the year 1958 reveals that two plant groups, aerial wire and station equipment and installations were the principal trouble makers. Some of the difficulty may be attributed to workmanship during construction and other items indicate a need for more and better preventive maintenance. The major trouble items are as follows:

AERIAL WIRE PLANT

Total in sample - 212.54 units (unit = 100 circuit miles)

ITEM	TROUBLES PER YEAR	TROUBLES PER UNIT YEAR	MONTH
Broken line wire	627	2.95	.25
Broken bridle wire	136	.64	.05
Excessive sag	325	1.53	.13
Mid-span hits	513	2.41	.20
Protector units	147	.69	.06
Falling trees	222	1.04	.09
Tree short or ground	277	1.30	.11
Lightning	121	.57	.05
Power contact	131	.62	.05
Total, all aerial wire troubles	2,857	13.5	1.1

STATION APPARATUS AND INSTALLATIONS

Total in sample - 181.36 units (unit = 100 stations)

ITEM	TROUBLES PER YEAR	TROUBLES PER UNIT YEAR	MONTH
*Dial	736	4.20	.35
**Ringer	1278	7.05	.58
Hook-switch	302	1.67	.14
Worn or broken cords	614	3.39	.28
Loose connection	246	1.36	.11
Station wire	372	2.05	.17
Sta. protector fuses	723	3.99	.33
Sta. protector carbons	281	1.55	.13
Loose ground wire	224	1.24	.10
Broken drop wire	808	4.46	.37
Lightning	213	1.17	.10
Receiver off hook	1026	5.66	.47
Total all station appr. and sta. conn. troubles	12,298	67.8	5.7

* Some 50% of this total was pulsing difficulty when dialing into connecting company offices following cutovers.

** Some 50% of this total are reports of "don't ring out" caused by malfunctioning of ringing systems installed in the early days of the telephone program.

The overall trouble index figure (troubles per 100 stations per month) for the average month of 1958 for this pilot group was 7.4.

By discounting the "no trouble found" reports the figure was 6.4.